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Rams Research Maker-Space

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RAMS RESEARCH MAKER-SPACE

TEAM MEMBERS

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Project Sponsor: Garret Westlake, Executive Director, VCU da Vinci Center

PROJECT ABSTRACT

VCU offers a rich and varied environment around research, however the abundance of resources and webpages are housed in the respective units. RAMS Research Maker-Space presents a prototype of a virtual research collaboration and resource hub available for use by the whole VCU community. This online platform aims to strengthen the research collaboration infrastructure by linking the research resources found across VCU's two campuses into one access point. Designed as an open access, resource rich digital maker-space, it promotes creativity, inclusion, and trans-disciplinary research and scholarship.

QUEST 2025: TOGETHER WE TRANSFORM

This project falls under VCU's Quest 2025 Theme II/Goal II.1: Create a university culture that supports and promotes VCU's interdisciplinary research strengths, scholarship and creative expression. RAMS Research Maker-Space will further strengthen VCU's infrastructure around collaboration and promote informed research projects. Facilitating increased collaboration, access to a full array of research resources, and training are the foundations for increased transformative research and scholarship.

PROJECT GOALS

In order for VCU to be competitive in transdisciplinary and interdisciplinary grants, increase publication rates, and attract and retain high-quality faculty and students, researchers in diverse disciplines need a way to find and connect with each other. This project aimed to facilitate connection and inclusion through the following goals:

- 1. Identifying gaps between researchers' needs and the available resources for cross campus and cross discipline collaborations;
- 2. Assessing researchers' interest in collaborative online and physical spaces and what their needs might be for such spaces; and
- 3. Designing a prototype online interface for research collaboration that supports communication, networking, and utilization of existing resources.

PROJECT STRATEGIES

The original idea for the project was two-fold, including a combination of physical and virtual spaces for incubation, collaboration and networking around research. Combining both spaces aimed to facilitate collaborative dialogue between various VCU disciplines, and the two campuses, so faculty, post-doctoral and student researchers could develop innovative connections and research projects. The project scope was narrowed to only the virtual space based on feedback from a campus-wide stakeholder survey (Appendix A), as well as time. To glean the logistics involved in constructing the website, team members met with the central IT

office. This meeting resulted in the decision that the beta webpage construction would be done by a skilled team member. Based on the survey feedback, and consultation with Garret Westlake, the team decided the RAMS Research Maker-Space beta website would initially focus on a fictitious new faculty member journey to find research resources and collaborators, as well as a graduate student seeking research information. This method illustrates the site's main features in a linear way. Although the initial website will focus on faculty, future expansion will center on postdoctoral researchers, as well as resources for undergraduate and graduate students from all disciplines, colleges and schools. Due to the original idea for the GEHLI project, the stakeholder survey included questions about a centrally-located physical research maker-space between the VCU Health and Monroe Park campuses. Students represented the majority of interest in the physical space demonstrating a need for a future resource beyond this project.

ACTION STEPS

- 1. Perform a needs survey to determine extant resource gaps and desired services.
- 2. Use the survey to inform the content for the website.
- 3. Meet with technical and logistical advisors to determine construction of the webpages.
- 4. Determine the costs associated with design/construction of the website and maintenance costs once launched.
- 5. Design beta website focused on one faculty member/one graduate student (Appendix B).

Future steps beyond GEHLI:

- 1. Build-out full website.
- 2. Test beta website to solicit feedback from University users and stakeholders.
- 3. Refine website content and flow based on feedback.
- 4. Launch and market website to University.

OUTCOMES

The main issue surrounding the availability, knowledge and use of the vast array of research resources available at VCU is many are housed in virtual web silos across the two campuses. These silos consist of individual websites, resource tools, informational documents, etc. that are housed in small (departmental/unit) to large repositories (Office of Research and Innovation, the VCU libraries, large center websites) (Appendix C). The current landscape not only duplicates efforts, but also hinders research growth and collaboration as faculty, clinicians, postdocs and graduate students who "don't know what they don't know" about the vast array of information and tools available. The following products aim to ameliorate this barrier:

- RAMS Research Maker-Space: a centralized digital repository of research-related resources available to anyone involved in research at VCU.
- RAMS List: a classifieds listing, a "research craigslist", for collaboration or proposal needs
- Research meet-up and events page

This centralized virtual research maker-space will allow a researcher at any level to link to, download, or find any resources available at VCU. By linking to each College/School's research web-based resources, RAMS Research Maker-Space will offer an integrated access site, streamlining efforts, reducing duplication, expediting the learning curve for new researchers, offering a new way for more senior researchers to find resources and needed expertise quickly, and promoting more collaborative funding efforts.

SUSTAINABILITY

In order for the proposed RAMS Research Maker-Space idea to become reality, there must be a dedicated virtual space within a central unit with adequate IT resources and knowledgeable personnel who can maintain, update, monitor and continue the development of the website. Key stakeholders in the realization of this resource are the Deans, Associate Deans of Research of

all colleges and schools across the two campuses, as well as central administrative stakeholders such as the Office of the Vice President for Research and Innovation, the Office of the Provost (Faculty and Student Affairs), the VCU Libraries, the Office of Undergraduate Research, the Office of Postdoctoral Services, and the Division of University Relations, among others. With the full support of the VCU research community, the RAMS Research Maker-Space will thrive as a key tool, adding an essential engagement feature to an already robust community of scholars at VCU.

FINANCING AND RESOURCES

Currently, it is not feasible to use central IT personnel to design and create the research makerspace website. The design and construction of the beta site was done via Research Interface GEHLI team members. Likely, this would also be the case for the original full beta website to be tested among key stakeholders. Start-up funding for the site would be the additional time put in by team members, all of whom are Academic and University Professionals. Future financial commitments would include: 1) a .5 or 1.0 FTE with information technology experience for the first 2-years (student - \$12 per hour, staff – approximate salary of \$60,000); 2) year 1 code writing/trouble-shooting for automation of the website classified postings and collaboration request routing (computer science class project- no cost or hourly rate for web developer - \$50-\$100/hr. for approximately 20 hours). The total approximate cost for year 1 with a .5 FTE (\$30,000) and web development (\$100/hr. x 20hrs. = \$2,000) would be \$32,000.

RECOMMENDATIONS

For successful implementation, it will be imperative to have the resources to develop and maintain a quality website that is easily accessed from the VCU homepage. It will also be critical to set a clear code of conduct for respect of others regarding communication, contact, and content. It will also be vital that VCU administrators promote the website as wider involvement will lead to more opportunities and greater user success. Recommended next steps for this project include:

- Develop a fully functional website with person dedicated to ongoing website maintenance
- Create a mobile app or integrate this website with existing mobile apps so that researchers can receive push notifications for the groups and contacts they make
- Explore a physical maker-space so that researchers have a dedicated location for collaborative activities and networking
- Explore pop-up research resource fairs for graduate students and the University so that networking can be timely and relevant to dissertations or grant deadlines

Barriers to success include finding the personnel to help with the final design, launch and maintenance of the website going forward. An additional issue is where the website will be housed (i.e., the Office of Research and Innovation, the VCU Libraries or another home). Smaller logistical issues are monitoring of the RAMS List advertisements and routing of the new collaboration requests. An avenue for successful implementation is to automate the website and its functions as much as possible, such as an algorithm, API or other code that will allow for both monitoring of content and appropriate routing of requests. Personnel will still be needed for additional maintenance, but perhaps this effort could be part of an existing position or done by a student.

FINAL PITCH

VCU serves its students and community as a preeminent national urban public research university and academic health center. RAMS Research Maker-Space is a needs-driven website prototype for the creation of a virtual research collaboration space. Fully executing this project will further streamline and boost VCU's research infrastructure. Increased collaboration in transdisciplinary and interdisciplinary research will increase competitive grant submissions, increase funded awards and scholarship, in turn attracting and retaining high-quality faculty. All of which strengthens the University's core commitment to servicing its students and patients.

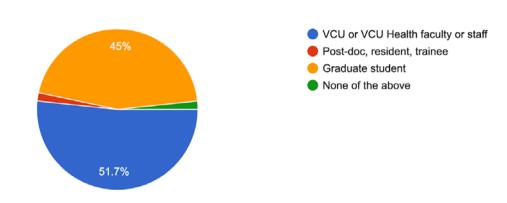
APPENDIX A. STAKEHOLDER SURVEY

To assess the research collaborative needs of the University a survey was generated and sent to over 250 faculty, clinicians, post-doctoral researchers, and graduate students (the team did not assess undergraduate students for the purposes of this phase). The survey was informal with anonymous responses. Participants were chosen based on convenience and snowball sampling. Questions included multiple choice and open-ended discussion. After self-identification as VCU or VCU Health faculty/staff, postdoc/resident/trainee, graduate student, or "none of the above", respondents answered the following survey questions:

What is the primary way that you identify collaborators to work on a research project with you?	How frequently might you use a collaboration website?
What is your biggest challenge with using available resources (websites, space, library, labs, etc.) to collaborate with other people on research?	Do you think there is a need at VCU/VCU Health for a physical location/maker-space where people can collaborate on research?
Do you think there is a need at VCU/VCU Health for a website that facilitates research collaborations?	Do you think you would personally go to a maker-space location?
Do you think a collaboration website might help you with your own research activities?	Do you think a maker-space location might help you with your own research activities?
Do you think you would personally use a collaboration website?	If a maker-space location were available, what might you use it for?
If a collaboration website were available, what might you use it for?	

The survey received a total of 60 responses. Of those responses, the majority (51.7%) identified as faculty/staff with graduate student respondents following at 45%. Results of the survey multiple choice answers are presented in the following charts/graphs:

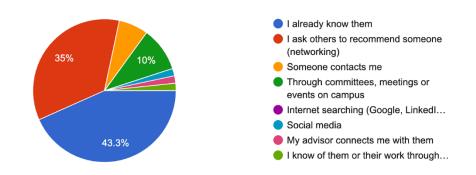
What is your role?



60 responses

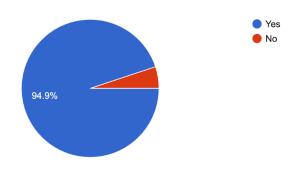
What is the primary way that you identify collaborators to work on a research project with you?

60 responses



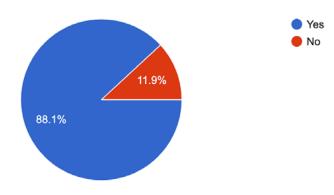
Do you think there is a need at VCU/VCU Health for an website that facilitates research collaborations?

59 responses



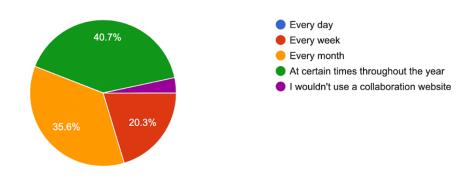
Do you think you would personally use a collaboration website?

59 responses



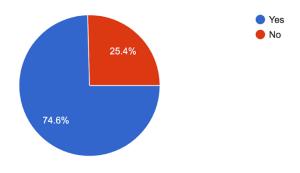
How frequently might you use a collaboration website?

59 responses



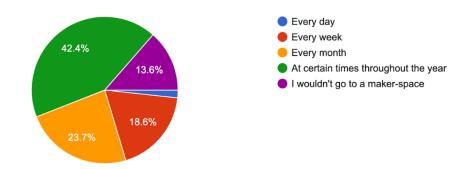
Do you think there is a need at VCU/VCU Health for a physical location/maker-space where people can collaborate on research?

59 responses



How frequently might you go to a maker-space location?

59 responses



Responses to the open-ended discussion questions are presented below:

- 1. What is your biggest challenge with using available resources (websites, space, library, labs, etc.) to collaborate with other people on research?
 - Time
 - Networking and Collaboration
 - Navigating Resources
 - Space
- 2. If a collaboration website were available what might you use it for? (top five results)
 - 85% Finding a Collaborator with similar research interests
 - 75% Posting your own expertise and skills so that people can find you for a collaboration
 - 73% Finding a student or other learner to work on a research activity for you
 - 73% A networking platform to meet others with similar research interests or with certain skills
 - 70% Posting a project to invite other people to collaborate with you
- 3. If a maker-space location were available, what might you use it for?
 - 73% A place to meet others to work on a research activity together
 - 68% Finding and accessing campus resources to help with a research project
 - 61% Finding a collaborator with similar interests
 - 58% A place to find training or education about research or about how to conduct research at VCU
 - 44% Finding a research project to be involved in

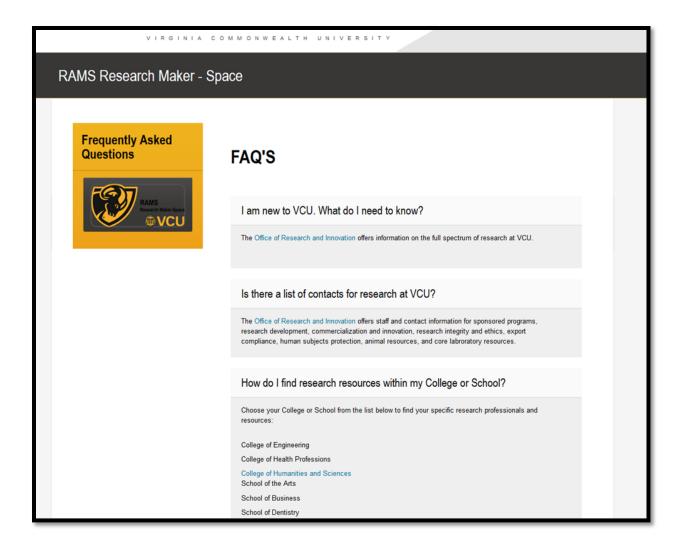
APPENDIX B. RAMS-RESEARCH MAKER-SPACE BETA WEBSITE SCREENSHOTS











RAMS Research Maker - Space

RAMSList Research Classifieds	Create a	RAMSL	ist Posting			
FGNT	Research Skills Neede		Skills/Expertise Offered	Research Space	Workshops	
RAMS	Writing Assistance	Undergraduate Research	Research Specific Interest Groups	Core Laboratories	Grantsmanship	
	Web Design	Graduate Research	Grant Proposal Assistance	Laboratory Space	Agency Workshops	
	Graphics	Participate in a Research Study	Writing Assistance	Equipment	Professional Development	
	Mentorship	Clinical Trials	Statistics	Software	Web Design/ Coding	
Create a RAMSList Posting Search RAMSList	Advising	VCU Jobs	Finance		AltLab	
Discussion Forums RAMSList FAQs	Statistics Collaborators		Mentoring Project Management		Community Offerings Networking Events	
Join a Research Group Create	a Research Group Net	working Group	Collaboration	nmunity Groups	Research Needs	
					S	iee all
what's happening soon in your area.			n Wi	N, NOV 11, 3:00 P pioid Interest ight Center for C Richmond Acader	M t Group linical + Translationa	
eulty Events what's happening soon in your area. R, OCT 11, 400 PM aculty Research Club ffice of the Provost) VCU ICA 5 attendees Atten	NSF Gran Office of Res vcu Acad	t Training earch + Innovation	n Wi mons $©$	pioid Interest	M t Group linical + Translationa	
what's happening soon in your area. a, OCT 11, 4:00 PM aculty Research Club ffice of the Provost) VCU ICA 5 attendees Atten ulty and Student Groups a research interest group, networkin Image: Atten Atten	NSF Gram Office of Res • VCU Acad 6 attendees g opportunity, workshop a	t Training earch + Innovation remic Learning Comm Ind other groups th	Attend 8 a	pioid Interest ight Center for C Richmond Acader Ittendees	M t Group Inical + Translationa my of Medicine Attend	
what's happening soon in your area. R, OCT 11, 400 PM aculty Research Club ffice of the Provost) VCU ICA 5 attendees Atten culty and Student Groups a research interest group, networkin CULTH	MSF Gram Office of Res vcu Acad 6 attendees	t Training earch + Innovation remic Learning Comm and other groups the Second Second S	n Wi mons 3 a Attend 8 a	pioid Interest ight Center for C Richmond Acader Ittendees	M t Group Inical + Translationa my of Medicine Attend	

Weblink	What type of resource does this link have?
https://research.vcu.edu/index.htm	Office of Research and Innovation Homepage
https://research.vcu.edu/vpr/index.htm	Vice President for Research and Innovation Homepage
https://research.vcu.edu/osp/index.htm	Office of Sponsored Programs
https://research.vcu.edu/integrity_compliance/index.htm	Office of Integrity and Compliance
	Office of Human Subjects Research/Institutional Review Board
https://research.vcu.edu/human_research/index.htm	(IRB)
https://research.vcu.edu/secure/acup/index.htm	Animal Care and Use Program (ACUP)
https://research.vcu.edu/innovation/index.htm	Innovation Gateway/VCU Ventures
https://research.vcu.edu/datascience/index.htm	VCU Data Science Lab
	RAMS-Systems Homepage (RAMS-AIRS, RAMS-ACUP, RAMs-
https://research.vcu.edu/vcuera/index.htm	ECO, RAMS-FORCE, RAMS-IRB, RAMS-SPOT, RAMS-Reports
https://arts.vcu.edu/ari/	Arts Research Institute
https://soe.vcu.edu/research/how-we-can-help/	School of Education Research site
https://egr.vcu.edu/research/office-of-sponsored-	
programs/	College of Engineering sponsored programs proposal & awards
	College of Humanitites and Sciences Sponsored Programs
https://intranet.chs.vcu.edu/sponsored-programs/	Develop an Idea
	iCubed collaborative research aound the welfare of urban
https://icubed.vcu.edu/	populations
	School of Dentistry Overview (fairly comprehensive with
https://dentistry.vcu.edu/research/	information)
	Comprehensive university resource list found on the SOD
https://dentistry.vcu.edu/research/resources/	Research page
https://pharmacy.vcu.edu/research/	School of Pharmacy overview
https://pharmacy.vcu.edu/about-us/centers-programs/	School of Pharmacy Centers and Programs
https://nursing.vcu.edu/research/	School of Nursing Research
https://www.massey.vcu.edu/research/	Massey Cancer Center Comprehensive Overview
https://socialwork.vcu.edu/research/	School of Social Work
	Clinical Research Affiliation Network (includes information on
https://www.massey.vcu.edu/research/cran	clinical trials)
	Areas of Research (includes Basic Laboratory Research and
https://measchool.vcu.edu/research/	Clinical and Iranslational Research)

APPENDIX C. SELECTION OF RESOURCES FOR CONDUCTING RESEARCH AT VCU

RAMS **Research Virtual Maker-Space**

Lelia Brinegar Ashley Carroll Stephanie Hart Larry Medina

Elicia Preslan Melissa Throckmorton Jeffery Wilson

Research is a way of life at VCU.



Background

Background

\$271 Million in research funding for 2018 and growing!!

- Two campuses; decentralized research infrastructure so virtual web silos
- Varying degrees of resources, mentors, individual websites, documents housed at unit and central level, libraries and large centers
- Many conversations about duplicate • efforts - current survey to inform the number and type of resources

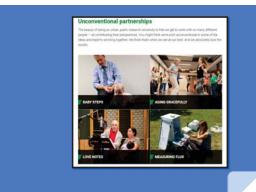






PROJECT SUMMARY

RAMS Research Maker-Space presents a prototype of a virtual research collaboration and resource hub available for use by the whole VCU community. This online platform aims to strengthen the research collaboration infrastructure across both campuses and to facilitate innovative partnerships inside and outside of VCU. Designed as an open access, resource rich maker-space, it promotes creativity, inclusion, and trans-disciplinary research and scholarship.



GOALS

Vision

For VCU to:

- Be competitive in transdisciplinary and interdisciplinary grants
- Have increased publication rates
- Attract and retain high-quality faculty and students

In order to achieve, researchers in diverse disciplines need pathways to connect with each other

Initial goals for the project

- To identify gaps between researchers' needs and the available resources for cross campus and cross discipline collaborations
 - To assess researchers' interest in collaborative online and physical spaces and what those needs may include
 - To review the resources currently available to researchers on campus
- To design a mockup or prototype of an online interface for research collaboration. If time and resources allow, fully develop and implement an online interface.
- To develop a business plan for a physical "maker-space" for research collaboration

The goals evolved over the course of the project

- To identify gaps between researchers' needs and the available resources for cross campus and cross discipline collaborations
- To assess researchers' interest in collaborative online and physical spaces and what their needs for such spaces might be
- To design a mockup or prototype of an online interface for research collaboration



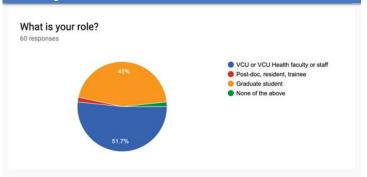
METHODS AND DESIGN

Needs Survey

Purpose:

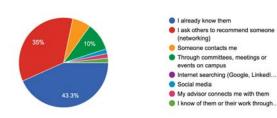
- To assess the research collaborative needs of the university, a survey was generated and disseminated to faculty and students across both campuses.
- 250 faculty, clinicians, post-doctoral researchers, and graduate students responded. (The team did not assess undergraduate students for the purposes of this phase.)
- · The survey was informal with anonymous responses

Survey Results



Survey Results

What is the primary way that you identify collaborators to work on a research project with you?



What is your biggest challenge with using available resources (websites, space, library, labs, etc.) to collaborate with other people on research?

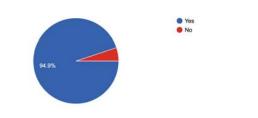
Time

Networking and Collaboration Navigating Resources Space

YesNo

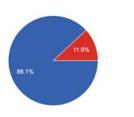
Questions On Website Needs

Do you think there is a need at VCU/VCU Health for an website that facilitates research collaborations?



Questions On Website Needs

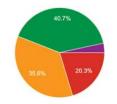
Do you think you would personally use a collaboration website? 59 responses



If a collaboration website were available what might you use it for?

- 85% Finding a collaborator with similar research interests
- **75%** Posting your own expertise and skills so that people can find you for a collaboration
- **73%** Finding a student or other learner to work on a research activity for you
- 73% A networking platform to meet others with similar research interests or with certain skills
- **70%** Posting a project to invite other people to collaborate with you

How frequently might you use a collaboration website? 59 responses

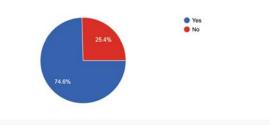


Every day
 Every week
 Every month
 At certain times throughout the year
 I wouldn't use a collaboration website



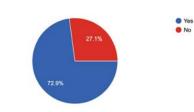
Maker-Space Needs

Do you think there is a need at VCU/VCU Health for a physical location/maker-space where people can collaborate on research? 59 responses



Maker-Space Needs

Do you think a maker-space location might help you with your own research activities?



If a Maker-Space location were available, what might you use it for? 73% A place to meet others to work on a research activity together

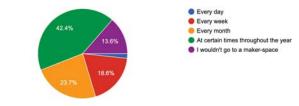
68% Finding and accessing campus resources to help with a research project

61% Finding a collaborator with similar interests

58% A place to find training or education about research or about how to conduct research at VCU

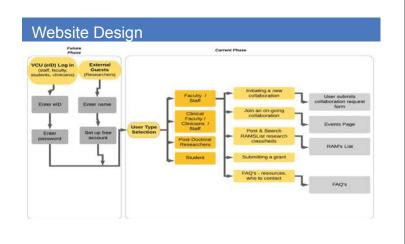
44% Finding a research project to be involved in

How frequently might you go to a maker-space location? 59 responses





IMPLEMENTATION





RAMS Research Virtual Maker-Space Demonstration



OUTCOMES

Outcomes

Upon implementation of the RAMS Research Maker-Space and RAMS List, individuals interested in cross-campus and cross disciplinary research will have the ability to interact through an online portal system to:

- Review resources currently available
- Identity potential collaborators with similar research interests
 Seek opportunities to
- Seek opportunities to participate/collaborate in a current research activity
 Advertise a current project to invite
- Advertise a current project to invite other collaborators to join

Outcomes

Benefits to Virginia Commonwealth University

- Increased cross-campus, cross-disciplinary collaboration
- Development of creative partnerships
- Increased ability to maintain VCU's Carnegie Foundation designation
- Increased opportunities to generate additional research funding



Implementation Needs

- Vital that VCU administrators promote the website as wider involvement will lead to more opportunities and greater user success
- Need adequate resources (tools and human effort) to develop and maintain a quality website that is easily accessed from the VCU homepage
- Critical to set a clear code of conduct for respect of others
 regarding communication, contact and content

Future Directions

- Develop a fully functional website
- Create a mobile app
- Devote an FTE to ongoing maintenance
- Explore pop-up research resource fairs for graduate students and/or the university
- Dedicate a physical location for a Maker-Space

Thank you

Garret Westlake, PhD, Executive director, VCU da Vinci Center

Faculty, staff, and students

GEHLI Team

.....and "The Napkin"